REMARKS

In the Office Action mailed August 19, 2003, the Examiner noted that claims 1-16 were pending and rejected all claims. Claims 1, 7-11 and 13 have been amended, new claim 17 has been added and, thus, in view of the forgoing claims 1-17 remain pending for reconsideration which is requested. No new matter has been added. The Examiner's rejections and objections are traversed below.

In the Action the Examiner requested an update to the specification. The specification has been updated as requested.

In the Action the Examiner requested the filing of an Information Disclosure Statement to cite patents issuing on previously cited related applications. An Information Disclosure Statement is filed concurrently herewith.

In the Office Action the Examiner objected to claims 7, 8 and 10 noting needed corrections. The claims have been amended in consideration of the Examiner's comments and it is submitted they satisfy the concerns of the Examiner. If additional concerns with the claims arise, the Examiner is invited to telephone to resolve the same. Suggestions by the Examiner are also welcome. Withdrawal of the objection is requested.

In the action the Examiner rejected claims 13-16 under 35 USC 101 as directed to non-statutory subject matter. Claim 13 has been amended to address this issue and it is submitted these claims satisfy the requirements of the statute. Withdrawal of the rejection is requested.

In the Office Action the Examiner rejected all claims under 35 U.S.C. § 102 as anticipated variously by Tsuboi (claims 1, 5, 6, 9, 11, 13, 15 and 16), Samet (1-4 and 9-12) and Certain (1, 2 and 7-14).

The present invention (see for example claim 1) is directed to a system that gives a name to a "newly created face" (or names to new faces) in a virtual surface mesh when a vertex is added to the mesh, such as occurs when the resolution of the surface mesh is changed to allow more detail to be displayed. The mesh is allowed to have "arbitrarily sided base faces". As such the present invention is provided with an arbitrarily sided face mesh that has a new vertex added to it. See figures When a new vertex is added several new faces are created. The new faces created by the new vertex are then named. The name or identifier provided to each new face is unique. This uniqueness is found in the face identifier where the face identifier includes the "base face identifier" which is the face that surrounds the new vertex. The face identifier also includes a "vertex index" on the new face which is a count from a reference. The

face identifier for the new face also includes a path to the new face where the path is list of faces from a reference. The unique identifier of the newly created face is "independent of the order of creation" of the new faces. The face identifier is also linear in that the identifier is encoded in a single number.

In contrast Tsuboi is directed to a system in which the mesh is static. As noted by the Examiner in the example pointed to in Tsuboi, all of the faces have vertex numbers and no new vertex is included. The Examiner identifies an alleged base face as face "4321". This base face does not surround a new vertex. Tsuboi does not address how to deal with a new vertex that is added inside the base face "4321". As a result, Tsuboi does not address how to name the new faces created by a new vertex. As a result, Tsuboi does not address naming a new face with, among other things a base face identifier for a face that surrounds a new vertex.

Samet is directed to a system that allows quad trees to be built. Quad trees allow hierarchical identification of related information, such as binary information that is stored in an array. A quad tree can be built that allows access to all of the cells of the array. Samet does not address much less provide a solution for naming anew face of a mesh created when a new vertex is added to a mesh. As a result, Samet does not address naming a new face with, among other things, a base face identifier for a face that surrounds a new vertex. In addition, Samet addresses the case where the polygonal mesh consists of a single four sided base face. However, he does not address the case where there is a plurality of arbitrarily sided base faces in the polygonal mesh.

Certain is directed to a system where a lower resolution mesh is to be created. That is, a system where essentiality vertexes are being removed from the mesh. Certain discusses representing the mesh with a data structure. However, Certain does not address adding a new face to a mesh and does not address naming a new face much less doing so with, among other things, a base face identifier for a face that surrounds a new vertex. In addition, Certain starts with a purely triangular mesh such that the polygonal mesh is always three-sided and does not address arbitrarily sided base faces.

As can be seen form the above discussion, the present invention of the independent claims distinguishes over the prior art alone or in combination.

It is submitted that the present claimed invention patentably distinguishes over Tsuboi, Samet and Certain and withdrawal of the rejection is requested.

The dependent claims depend from the above-discussed independent claims and are patentable over the prior art for the reasons discussed above. The dependent claims also recite

additional features not taught or suggested by the prior art. For example, claim 6 calls for determining a unique name for an edge of a face. The Examiner asserts that part of a face definition for a face in Tsuboi is a unique edge name. This is something that the Examiner has asserted without support from Tsuboi and that is based on the personal knowledge of the Examiner. Tsuboi teaches nothing about naming edges, much less of a new face where a new vertex has been added. The Examiner is requested to identify with particularity the place in Tsuboi where naming edges of faces is discussed. The remaining dependent claims are distinguishable over the prior art for similar reasons. It is submitted that the dependent claims are independently patentable over the prior art.

New claim 17 also emphases the naming of a new face when a new vertex is added. Nothing in the prior art teaches or suggests such. It is submitted that the new claim, which is different and not narrower than prior filed claims distinguishes over the prior art.

It is submitted that the claims are not taught, disclosed or suggested by the prior art. The claims are therefore in a condition suitable for allowance. An early Notice of Allowance is requested.

If any further fees, other than and except for the issue fee, are necessary with respect to this paper, the U.S.P.T.O. is requested to obtain the same from deposit account number 19-3935.

Respectfully submitted,

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